

Appl. No. 10/686,959
Response Dated March 27, 2006
Reply to Office Action of December 27, 2005

Docket No.: 42P16717
Examiner: Yang, Clara I
TC/A.U. 2635

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A wireless communication system comprising:

a wireless transceiver to transmit and receive information to one or more other wireless communication systems over a wireless channel;

an antenna coupled to the wireless transceiver;

a wireline transceiver to transmit and receive information over a wireline network;

a processor coupled to the wireline transceiver and the wireless transceiver, wherein the communication system is adapted to send and receive one or more data messages over the wireless channel and to send and receive one or more control messages over the wireline network to coordinate one or more aspects of communication over the wireless channel and to receive a common timing signal from the wireline network.
2. (Original) The wireless communication system of claim 1 wherein the wireless communication system comprises either a wireless access point (AP) or a wireless router.
3. (Cancelled).

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4. (Original) The wireless communication system of claim 1 wherein the communication system is adapted to communicate control messages over the wireline network to coordinate one or more aspects of data communication over the wireless channel, the one or more aspects to be coordinated to be selected from the group comprising:

- to establish communication schedules between nodes;
- to exchange association tables between nodes or access points;
- to exchange routing tables or routing information between nodes;
- to exchange information between nodes related to the assignment of channels, frequencies or time slots in a multiple access system;
- to exchange timing information between nodes;
- to exchange information between nodes relating to clock synchronization;
- to exchange information between nodes related to the request, negotiation or enforcement of a Quality of service (QoS); and
- to exchange security related information between nodes.

5. (Original) The wireless communication system of claim 1 wherein the wireline transceiver comprises a power line transceiver to transmit and receive information over a power line network.

6. (Currently Amended) A wireless node comprising:
a wireless transceiver to transmit and receive information to one or more other wireless nodes over a wireless channel;

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a power line transceiver to transmit and receive information to other nodes over a power line network; and

a processor coupled to said transceivers, wherein the node is adapted to communicate one or more control messages over the power line network to coordinate one or more aspects of communication over the wireless channel between the nodes and to receive a common timing signal from the power line network.

7. (Original) The wireless node of claim 6 wherein the node is adapted to communicate one or more control messages over the power line network to coordinate one or more aspects of communication over the wireless channel between the nodes, the one or more aspects to be coordinated to be selected from the group comprising:

- to establish communication schedules between nodes;
- to exchange association tables between nodes or access points;
- to exchange routing tables or routing information between nodes;
- to exchange information between nodes related to the assignment of channels, frequencies or time slots in a multiple access system;
- to exchange timing information between nodes;
- to exchange information between nodes relating to clock synchronization;
- to exchange information between nodes related to the request, negotiation or enforcement of a Quality of service (QoS); and
- to exchange security related information between nodes.

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8. (Original) The node of claim 6 and further comprising an antenna coupled to the wireless transceiver.

9. (Currently Amended) A communication system comprising:

a wireline network; and

one or more wireless nodes coupled to the wireline network, wherein one or more of the wireless nodes are adapted to communicate one or more data messages with other wireless nodes over a wireless channel and to communicate control messages with other wireless nodes over the wireline network to coordinate one or more aspects of the communication of messages over the wireless channel and to receive a common timing signal from the wireline network.

10. (Original) The communication system of claim 9 wherein the wireline network comprises a power line network.

11. (Currently Amended) A method of transmitting messages between wireless nodes, one or more of the wireless nodes being coupled to both a wireless channel and a wireline network, the method comprising:

the one or more wireless nodes communicating one or more data messages over the wireless channel; and

the one or more wireless nodes communicating one or more control messages over the wireline network to coordinate one or more aspects of communication between

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the wireless nodes over the wireless channel and receiving a common timing signal from the wireline network.

12. (Original) The method of claim 11 wherein the one or more wireless nodes communicating one or more control messages over the wireline network comprises the one or more wireless nodes communicating one or more control messages over a power line network to coordinate one or more aspects of communication between the wireless nodes over the wireless channel.

13. (Original) The method of claim 12 wherein the one or more aspects of communication over the wireless channel to be coordinated to be selected from the group comprising:

- to establish communication schedules between nodes;
- to exchange association tables between nodes or access points;
- to exchange routing tables or routing information between nodes;
- to exchange information between nodes related to the assignment of channels, frequencies or time slots in a multiple access system;
- to exchange timing information between nodes;
- to exchange information between nodes relating to clock synchronization;
- to exchange information between nodes related to the request, negotiation or enforcement of a Quality of service (QoS); and
- to exchange security related information between nodes.

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14. (Currently Amended) A method of using both a wireless network and a power line network comprising:

communicating one or more data messages over a wireless channel;

and

communicating one or more control messages over a wireline network to coordinate one or more aspects of communication over the wireless channel; and receiving a common timing signal from the wireline network.

15. (Original) The method of claim 14 wherein the one or more aspects of communication over the wireless channel to be coordinated to be selected from the group comprising:

to establish communication schedules between nodes;

to exchange association tables between nodes or access points;

to exchange routing tables or routing information between nodes;

to exchange information between nodes related to the assignment of channels, frequencies or time slots in a multiple access system;

to exchange timing information between nodes;

to exchange information between nodes relating to clock synchronization;

to exchange information between nodes related to the request, negotiation or enforcement of a Quality of service (QoS); and

to exchange security related information between nodes.

16. (Currently Amended) An article comprising:

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a storage medium;
said storage medium including stored thereon instructions that, when executed by a processor, result in:

communicating one or more data messages over a wireless channel;
and
communicating one or more control messages over a wireline network to coordinate one or more aspects of communication over the wireless channel; and
receiving a common timing signal from the wireline network.

17. (Original) The article of claim 16 wherein the instructions resulting in communicating one or more control messages comprises communicating one or more control messages over a power line network to coordinate one or more aspects of communication over the wireless channel.

18. (Withdrawn) A method of clock synchronization comprising:
initializing a local clock;
obtaining a time value from a second clock;
calculating an offset between the local clock and the second clock;
adjusting the local clock based on the offset;
receiving a common timing signal from a wired network;
adjusting the local clock based upon the common timing signal.

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19. (Withdrawn) The method of claim 18 wherein the receiving a common timing signal comprises receiving a common or global timing signal via a power line network.

20. (Withdrawn) The method of claim 18 wherein the receiving a common timing signal comprises receiving an AC power signal from a power line network.

21. (Withdrawn) The method of claim 18 wherein the adjusting the local clock based upon the common timing signal comprises adjusting a phase of the local clock based upon the common timing signal from a power line network to decrease clock drift.

22. (Withdrawn) The method of claim 18 wherein calculating an offset comprises calculating an offset between the local clock and the second clock based on a time stamp from the second clock and a network latency.

23. (Withdrawn) A node in a network, the node comprising:
a processor, the processor programmed to implement a local clock process, the local clock process to determine an initial time for a local clock, to receive a timing signal via a power line network, and to adjust the local clock based upon the timing signal.

24. (Withdrawn) A wireless multi-hop network comprising a plurality of wireless nodes, each of the wireless nodes comprising a node as recited in claim 23.

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25. (Withdrawn) The node of claim 23 wherein the local clock process to determine an initial time for a local clock comprises the clock process to receive a time stamp

26. (Withdrawn) A method of clock synchronization comprising:
determining an initial time for a local clock;
receiving a timing signal via a power line network;
adjusting the local clock based upon the timing signal.

27. (Withdrawn) A method of clock synchronization for one or more nodes in a multi-hop wireless TDMA network, the method comprising:
determining an initial time for a local clock;
receiving a timing signal via a power line network;
adjusting the local clock based upon the timing signal; and
using the adjusted local clock to identify one or more TDMA time slots.